

TRENDS IN ORCHARD DEVELOPMENT AND MANAGEMENT

E. R. Eggers

Formerly on the staff of the University of California at Los Angeles, and now an avocado nurseryman in San Diego County.

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Mr. Chairman, members of the California Avocado Society, and guests.

My remarks on "Trends in Orchard Development and Management" will apply primarily to San Diego County — the area with which I am most familiar.

The development of the orchard starts with the seed selected for the root stock. Most field-grown nursery trees are, and have been, grown on Mexican rootstocks which have proven most satisfactory under most circumstances.

There is a difference in Mexican seed sources. Some being better than others, however, such old standbys are Topa Topa and Ganter and many unnamed Mexican seedlings appear to be quite satisfactory. With the identification and elimination of some sun-blotch carriers, our seed sources are becoming safer.

At one time, nearly all avocado seeds were planted in seed beds and the seeds ripened in the fall months. The sprouted seedlings were then lined out in nursery rows in the spring.

At present, nearly all seeds are planted in place of the nursery rows during the fall and winter months. In the early plantings, the location of the seed in the row was marked by a short stick. Now most nurserymen plant their avocado seeds under paper drinking cups, which have proven very satisfactory. As far as I know, Mr. Cecil Randall, of the Randall Nurseries, was the first to use these cups. The rest of us have adopted his method.

The germination of the seed can be hastened by cutting a thin slice off each end prior to planting.

The first consideration in selecting budwood is production. In the case of the Fuerte, it is still necessary to select buds from trees that have a production record. Blocks of trees, all buds of which were taken from one good parent tree, are not necessarily all good producers.

Sun-blotch is still a problem in that some trees are carriers and do not show the symptoms. However, with the elimination of all trees with one or more symptoms, and selecting trees as bud sources which have production records, better nursery trees are being produced now than were available some years back.

In the early stages, the demand was mostly for large trees. During the cold years of 1948—50, when nursery trees were scarce, there was quite a demand for tip grafts and tied up buds. Now, the demand is primarily for so-called "one year-old trees", actually trees 2' — 4' high, 6 — 8 months from budding. On the wild life fringe areas, where deer and rabbits are a hazard, growers demand a large caliper two-year-old tree. They have a better chance of survival.

In the past, we have had attempts at starting avocado orchards by planting seeds or seedlings in place. Growers felt they could develop their orchards cheaper this way, or they believed that trees are damaged by moving. There is no evidence to support the theory that trees are permanently damaged by moving, if this operation is carefully handled while the trees are young. As far as saving money is concerned, most developments were more costly, if successful, and many were partial or total failures because the grower did not realize the hazards and expense involved.

At the present time, there are very few attempts at planting seeds in place or growing nursery trees in backyards.

With few exceptions, prospective growers are ahead by purchasing avocado trees from a reliable nurseryman, of which there are several.

Many of our early plantings were made on soil not suitable for avocado culture. With our present knowledge of soil suitable for avocados, most growers are limiting their plantings to their better soils and planting citrus on their heavier and poorer soils. It is well to remember that in doing this, they cannot expect the production that may be obtained from citrus on good soils.

As good avocado soil, with available water, becomes scarcer, plantings are being made on steeper and steeper slopes. There is very little terracing, however. Most layouts provide for an occasional road for accessibility. Now that sprinkler irrigation and non-cultivation is almost universal, nearly all plantings are made on a rectangular pattern, even on the steepest slopes.

Trees are usually planted close together, with a thinning program in mind. The planting distance depends on the variety. For the Fuerte and Hass, it is usually 20' x 20'.

Double planting is advantageous in that trees come into production earlier and heavier. This is probably due to mutual protection afforded from the elements and better chance for pollination. Also, fruit that sets is less subject to wind damage, as a result of the mutual protection.

Except for the cost of the tree itself, there is little extra expense in caring for a larger number of trees per acre. The extra trees also shade out weeds, cutting down on cultural expense, and finally the grower derives considerable revenue from the extra trees before they are removed.

The greatest change has come in our irrigation installation. We started with furrows and, in some cases, large basins. Next came large overhead sprinkler systems, either permanent or movable. Next came the under tree sprinklers on portable pipe or hose lines, or on permanent pipe installation.

With the advent of the plastic age, sprinklers on portable plastic hose lines largely

replaced rubber hose lines. A few permanent plastic hose installations were made. Then, we had quite a run on small diameter plastic hose, with holes drilled or punched directly into the hose. These were used primarily on new plantings.

At the present time, most growers are having the complete permanent irrigation system installed before a tree is planted. This usually consists of a steel main line, with plastic submains and plastic laterals and risers. Very often, a unit of 40 to 100 or more trees may be controlled by one master valve. In the early stages, the individual risers are capped by spitters and heads that cover more area installed as the need arises.

One of the big advantages to a permanent installation is that, in addition to its labor saving feature, an orchard can be covered rapidly during a period of stress and the extra water and humidity may save part of a crop. Those of us who have progressed through the evolution from furrows through removing scale from heads on steel tubing; moving portable pipe or hose, especially on a cold morning, or when you are in a hurry, appreciate that considerable progress has been made.

Convenient and trouble free as these plastic installations are, foreign material may still get into the line, so it is well to check all the heads to be sure they are running before you go fishing.

While we are on the subject of water, irrigation practice is also undergoing a change. It has been generally accepted that, as the avocado trees become larger, the sprinkler heads should be moved out into the middle to give better distribution and to keep water away from the trunks of the trees. There is no evidence that I know of, indicating that leaving sprinkler heads under the trees, within 4' — 5' of the trunk, is harmful providing the trees are planted on a well-drained soil.

During periods of heat, wind and low humidity, orchards with under tree sprinklers suffer less from tip burn than trees watered between the rows. Also, there is considerable water loss due to evaporation when water is applied between the rows.

The Fuerte variety is pretty well limited to the "intermediate zone."

Hass is being planted in all areas and many Fuertes have been top-worked to Hass, primarily in the cooler coastal areas, however. Anaheim, MacArthur and Rincon are also being planted with Jalna, Bacon and Zutano, going into the colder areas.

There is one trend that I wish I could answer, and that is how to prevent the lack of production during an unfavorable spring setting season. Following the recommendation of the Variety Committee and planting our present varieties in their most favorable location will help.

In the case of the Fuerte, using less nitrogen may help. Also, there is an indication that leaving an occasional seedling or planting opposite phase varieties may help the set.

New seedlings are being tried out and one of these may be the solution to our problem, I hope so.